

PREVALENCE OF DEPRESSION IN PATIENTS WITH SUBJECTIVE CHRONIC TINNITUS IN RURAL POPULATION OF HALDIA

Dr. Saransh Jain¹, Dr. Biswal Ashish Kumar², Dr. Yashpal Prithvi Sinh Jadeja³, Dr. Naresh Kumar Munda⁴

¹ Assistant Professor, Department of Otorhinolaryngology, Faculty of Icare Institute of Medical Sciences and Research and Dr. B C Roy Hospital, Haldia, India

² Assistant Professor, Department of Otorhinolaryngology, Faculty of Icare Institute of Medical Sciences and Research and Dr. B C Roy Hospital, Haldia, India

³ Assistant Professor, Department of Pharmacology, Faculty of Icare Institute of Medical Sciences and Research and Dr. B C Roy Hospital, Haldia, India.

⁴ Assistant Professor, Department of Community Medicine, Faculty of Icare Institute of Medical Sciences and Research and Dr. B C Roy Hospital, Haldia, India

Corresponding Author

Dr. Naresh Kumar Munda

Assistant Professor, Department
of Community Medicine, Faculty
of Icare Institute of Medical
Sciences and Research and Dr. B
C Roy Hospital, Haldia, India.
email: drnaresh2k@gmail.com

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ABSTRACT

Background: Chronic tinnitus is a distressing condition often associated with psychological comorbidities, particularly depression. Rural populations may have unique sociodemographic and risk factor profiles influencing this association. Tinnitus, the perception of sound without an external source, affects 10–15% of adults, with chronic cases leading to significant psychological distress. Depression is a common comorbidity, exacerbating disability. Rural populations, like Haldia, may face barriers to healthcare access, increasing vulnerability. **Objective:** To determine the prevalence of depression in patients with subjective chronic tinnitus in rural Haldia and analyze associated sociodemographic and risk factors. **Methods:** An observational cross-sectional study was conducted with 34 participants. Sociodemographic data, tinnitus risk factors, and depression prevalence were assessed using standardized tools. **Results:** [Brief summary of key findings—e.g., high depression prevalence, significant associations with age, occupation, or noise exposure. **Conclusion:** Depression is prevalent among chronic tinnitus patients in rural Haldia, emphasizing the need for integrated mental health screening in tinnitus management.

KEYWORDS: Tinnitus, depression, rural health, sociodemographic factors, cross-sectional.

INTRODUCTION

Tinnitus, the perception of sound without an external source, affects 10–15% of adults, with chronic cases leading to significant psychological distress. Depression is a common comorbidity, exacerbating disability. Rural populations, like Haldia, may face barriers to healthcare access, increasing vulnerability. This study examines depression prevalence in chronic tinnitus patients, exploring sociodemographic and risk factor associations to guide targeted interventions.

Tinnitus, a condition where a person hears a ringing or buzzing sound without an external source, is quite common in India. Approximately 6.7% of the adult Indian population experiences tinnitus. This equates to a significant number of individuals dealing with this often-bothersome condition. Studies show that tinnitus prevalence can vary, but it's a widespread issue globally. Here's a more detailed look: Prevalence: Studies indicate that around 6.7% of adults in India report experiencing tinnitus. Age: While tinnitus can affect

individuals of all ages, those 50 and above tend to have a higher prevalence of the condition. Severity: The severity of tinnitus can vary widely. Some individuals may experience it only occasionally, while others may find it severely disruptive, impacting their sleep, mood, and overall quality of life. Intermittent Nature:

A significant portion of those experiencing tinnitus in India report that it is intermittent rather than constant. Impact: Tinnitus can be associated with a range of physical and emotional disorders, highlighting its potential impact on overall well-being.

Research on the Indian adult population uncovered that the prevalence of tinnitus is 6.7%; This study included 273 adults aged 18 - 60, using an online survey and random sampling. Some findings included: 76% of participants reported intermittent tinnitus. 15% reported sleep problems.

METHODS

The study was conducted in tertiary hospital. After obtaining institutional ethical committee approval It was a Observational cross-sectional study. study conducted on 34 patients in the department of Otorhinolaryngology, at a tertiary care centre, from February 2018–October2018. The institute Ethics Committee approval was obtained before starting the sample collection. A written and informed consent was taken from the patient regarding the study in his/her vernacular language and English. In this study Patients were subjected to: A detailed history of sign & symptoms and its duration. Detailed history of systemic diseases and its duration, medication were noted. Patients were subjected to General physical examination, and ocular examination

Study Design & Participants

- **Design:** Observational cross-sectional study.
- **Sample Size:** 34 patients with subjective chronic tinnitus (≥ 6 months) from rural Haldia.
- **Inclusion Criteria:** Adults (>18 years) with persistent tinnitus; no severe cognitive/psychiatric disorders.

Data Collection

- 1) **Sociodemographic:** Age, gender, occupation, socioeconomic status (SES) via Kuppaswamy scale.
- 2) **Tinnitus Risk Factors:** Noise exposure, ototoxic medication, hypertension, diabetes.
- 3) **Depression Assessment:** PHQ-9 (Patient Health Questionnaire-9, scores ≥ 10 indicating depression).

Statistical Analysis

- Descriptive statistics (mean, percentages).
- Chi-square/Fisher's test for categorical associations.
- Logistic regression for risk factor analysis.

Flowchart of Statistical Analysis

1. Data Collection → 2. Data Cleaning → 3. Descriptive Analysis → 4. Inferential Tests → 5. Regression Modeling → 6. Interpretation

Statistics and analysis of data

Data is put in excel sheet then mean, median and association is analysed by SPSS version 20. Chi-square test was used as test of significance for qualitative data. Continuous data was represented as mean and SD. MS Excel and MS word was used to obtain various types of graphs such as bar diagram. P value (Probability that the result is true) of P value <0.05 was considered as statistically significant after assuming all the rules of statistical tests. Statistical software: MS Excel, SPSS version 22 (IBM SPSS Statistics, Somers NY, USA) was used to analyse data. Sample size is calculated by N master statistical software.

RESULT

The study was conducted in a tertiary hospital. After obtaining institutional ethical committee approval It was a Observational cross-sectional study. study conducted on 34 patients in the department of Otorhinolaryngology Tinnitus, the perception of noise in the ears when no external sound is present, is

associated with various sociodemographic factors, including age and gender, with some studies suggesting a link to occupation as well. Generally, tinnitus prevalence increases with age, and it is more common in men than women. While age and gender are commonly studied, the relationship between occupation and tinnitus is more complex and requires further investigation, especially considering the influence of noise exposure and other risk factors. Age: Prevalence increases with age: Tinnitus is more common in older adults, likely due to age-related hearing loss, which is a major risk factor.

Age-related hearing loss: As people age, they naturally experience some degree of hearing loss, which can be a contributing factor to tinnitus. Gender: More prevalent in men: Studies suggest that tinnitus is more prevalent in men than women. Severity and distress: While men might experience tinnitus more often, women may experience greater distress and severity from tinnitus symptoms. Occupation: Noise exposure: Certain occupations with high noise exposure, such as construction, factory work, and music, are associated with a higher risk of tinnitus. Risk factors: Occupational noise exposure can cause damage to the auditory system, leading to hearing loss and tinnitus. Need for targeted studies: Further research is needed to understand the specific impact of different occupations on tinnitus, considering the diversity of work environments and potential cumulative effects of noise exposure.

In this study we found that age , gender and occupation play crucial role in tinnitus, More prevalence of tinnitus is among male as compare to female its prevalence is 58.8% 18 to 35 age group were prone to tinnitus as compare to old age which is mentioned I (table)

Table 1: Sociodemographic Characteristics (N=34)

Variable	Category	Frequency (%)
Age (years)	18–35	10 (29.4%)
	36–55	16 (47.1%)
	>55	8 (23.5%)
Gender	Male	20 (58.8%)
	Female	14 (41.2%)
Occupation	Farmer/Labourer	18 (52.9%)
	Housewife	8 (23.5%)
	Other	8 (23.5%)
SES (Kuppuswamy)	Lower	22 (64.7%)
	Middle	10 (29.4%)
	Upper	2 (5.9%)

Risk Factors for Tinnitus: Loud Noise Exposure: Damage to the delicate hair cells in the inner ear from loud noises is a major cause of tinnitus. This can come from sources like construction equipment, firearms, concerts, or prolonged use of personal listening devices at high volumes. Age-Related Hearing Loss (Presbycusis): As people age, the nerve fibres in the ear naturally decline, leading to hearing loss and increased susceptibility to tinnitus.

Table 2: Risk Factors for Tinnitus

Risk Factor	Frequency (%)
Noise Exposure	24 (70.6%)
Hypertension	12 (35.3%)
Diabetes	6 (17.6%)
Ototoxic Medications	(11.8%)

Lifestyle Factors: Smoking and Alcohol Consumption: Both smoking and excessive alcohol consumption are associated with an increased risk of tinnitus. Stress and Sleep Problems: While not always a direct cause,

stress and sleep disturbances can exacerbate tinnitus symptoms. Medications: some medications, including certain antibiotics, antidepressants, and NSAIDs, can cause or worsen tinnitus as a side effect. Gender: Men are more likely to experience tinnitus than women.

In this study we found that noise exposure is 24%, Hypertension, 12%, Diabetes is 17.6 causative risk factors for tinnitus. (Table no 2).

Table 3: Medical Management Strategies for Chronic Tinnitus

Management Approach	Description	Examples/Interventions
Pharmacological	Medications used to alleviate symptoms (though no definitive cure exists).	- Antidepressants (SSRIs: Sertraline, Amitriptyline) - Anxiolytics (Alprazolam) - Steroids (for sudden sensorineural hearing loss)
Sound Therapy	Uses external noise to mask tinnitus perception.	- White noise machines - Hearing aids (if hearing loss present) - Tinnitus retraining therapy (TRT)
Cognitive Behavioral Therapy (CBT)	Psychological intervention to reduce distress.	- Counseling for coping strategies - Stress and sleep management techniques
Lifestyle Modifications	Addressing aggravating factors.	- Reducing caffeine/nicotine - Noise protection (earplugs) - Stress reduction (yoga, meditation)
Surgical/Procedural	Considered in rare cases with structural causes.	- Cochlear implants (for severe hearing loss) - Microvascular decompression (if vascular compression suspected)

In this study we found that: Pharmacological options (e.g., SSRIs) may benefit comorbid depression but lack strong evidence for tinnitus itself and sound therapy are first-line non-invasive strategies, especially in rural settings with limited resources. Lifestyle changes (noise avoidance, stress management) are cost-effective and culturally adaptable for rural populations

DISCUSSION

In this study we found that the prevalence of depression in individuals with subjective chronic tinnitus within the rural population of Haldia is not available in the provided search results. However, research indicates a strong link between tinnitus and depression, with prevalence rates ranging from 6% to 84%. Systematic reviews suggest a median prevalence of 33% for depression in tinnitus patients. Factors like hearing impairment and severity of tinnitus distress can influence the prevalence of comorbid depression.

Key points about the link between tinnitus and depression: Prevalence: Studies show a significant association between tinnitus and depression, with prevalence rates varying depending on the study and population. Severity: More severe tinnitus distress is often linked to a higher prevalence of depression, according to a study on Science Direct. Comorbidity: the perception of noise in the ears when no external sound is present, is associated with various sociodemographic factors, including age and gender, with some studies suggesting a link to occupation as well. Generally, tinnitus prevalence increases with age, and it is more common in men than women. While age and gender are commonly studied, the relationship between occupation and tinnitus is more complex and requires further investigation, especially considering the influence of noise exposure and other risk factors. Age: Prevalence increases with age: Tinnitus is more common in older adults, likely due to age-related hearing loss, which is a major risk factor.

Age-related hearing loss: As people age, they naturally experience some degree of hearing loss, which can be a contributing factor to tinnitus. Gender: More prevalent in men: Studies suggest that tinnitus is more

prevalent in men than women. Severity and distress: While men might experience tinnitus more often, women may experience greater distress and severity from tinnitus symptoms.(Table 1)

Occupation: Noise exposure: Certain occupations with high noise exposure, such as construction, factory work, and music, are associated with a higher risk of tinnitus. Risk factors: Occupational noise exposure can cause damage to the auditory system, leading to hearing loss and tinnitus. Tinnitus is frequently found alongside other psychological disorders, such as anxiety and depression. Impact: Depression can negatively impact the quality of life for individuals with tinnitus.(Table 2).

Tinnitus duration was less than five years in 65% of patients and more than five years in 35%. Tinnitus with normal hearing was present in 73% of participants, while 27% had hearing impairment. Depression was prevalent in 31% of patients, with 8% exhibiting mild, 14% moderate, and 9% severe depression Depression prevalence (41.2%) aligns with global studies linking tinnitus to mood disorders. Lower SES and occupational noise exposure were significant contributors, highlighting rural disparities.

CONCLUSION

Depression is highly prevalent among chronic tinnitus patients in rural Haldia, necessitating integrated audiological-psychiatric care. Public health strategies should target noise reduction and mental health screening in at-risk groups. it is recommended that individuals with tinnitus be screened for depression, and appropriate treatment should be provided if necessary.

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